

## Features

- Low Collector-Emitter Saturation Voltage
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings @ 25°C Unless Otherwise Specified

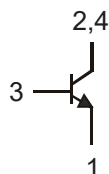
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	3	A
Power Dissipation	$P_D$	500	mW

## Thermal characteristics

Parameter	Symbol	Rating	Unit
Junction Temperature Range	$T_J$	-55~+150	°C
Storage Temperature Range	$T_{STG}$	-55~+150	°C
Thermal Resistance from Junction to Ambient	$R_{th(J-A)}$	250	°C/W

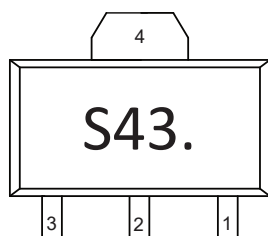
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Internal Structure



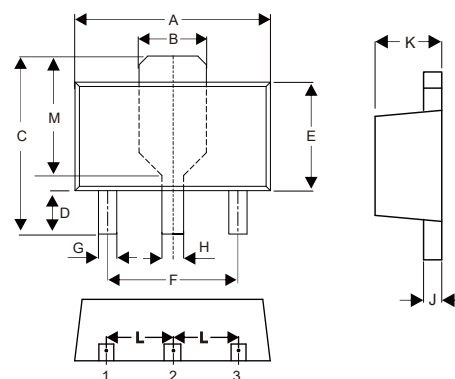
1. Emitter  
2,4. Collector  
3. Base

## Marking Code



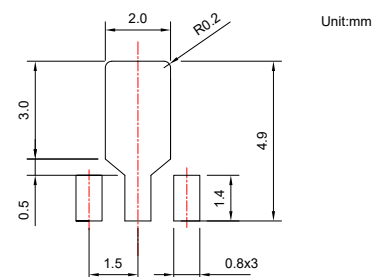
## NPN Low $V_{CE(sat)}$ Transistor

## SOT-89



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP.
M	0.108		2.75		TYP.

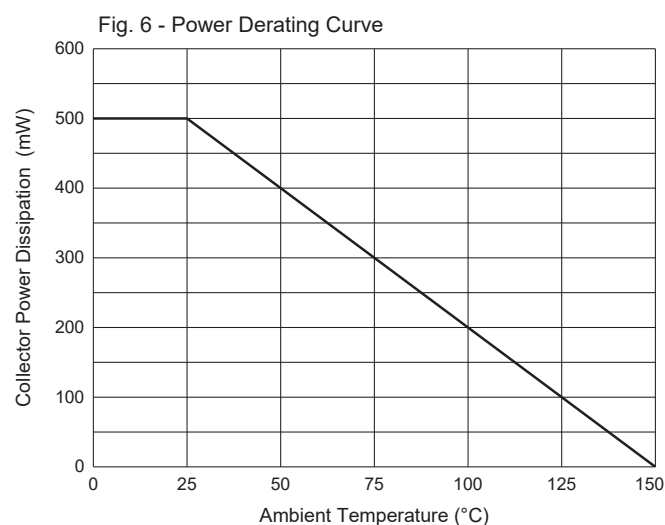
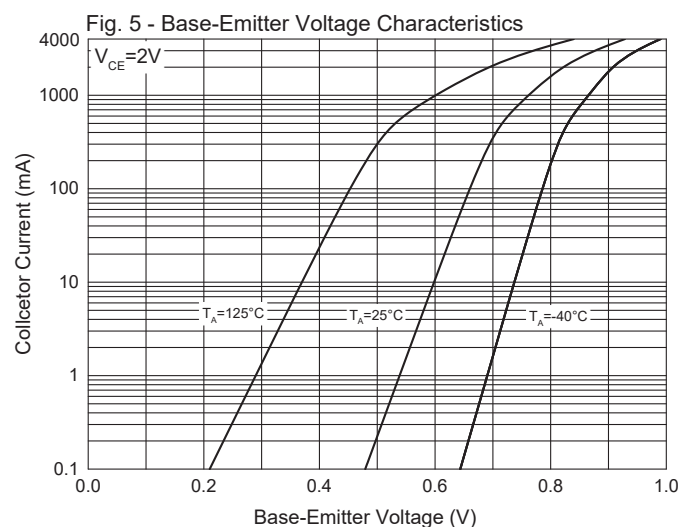
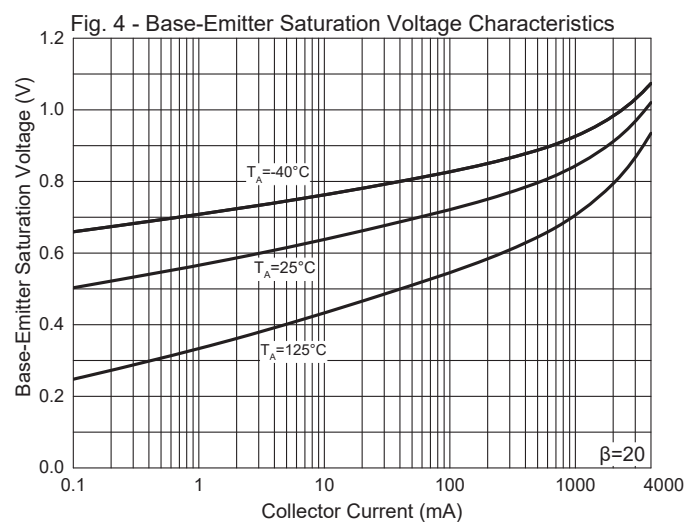
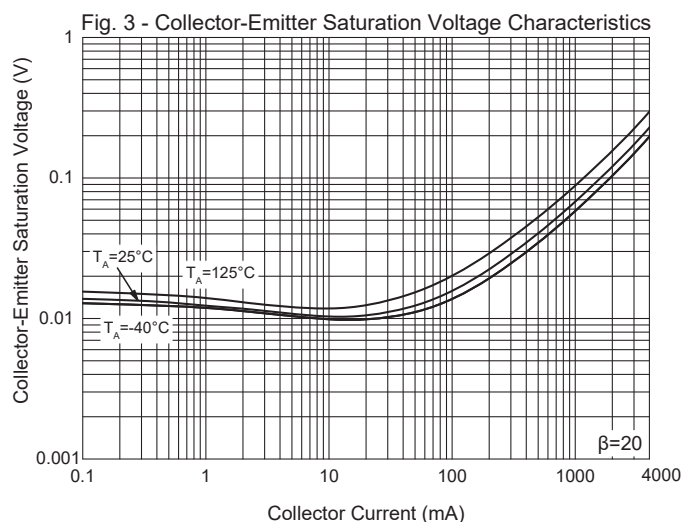
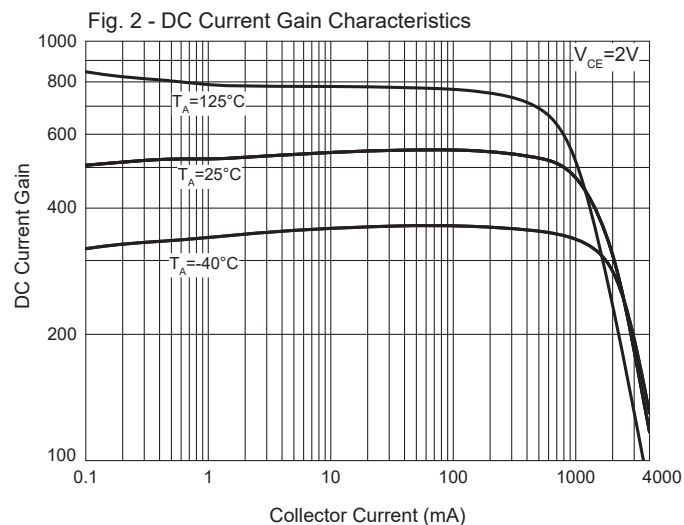
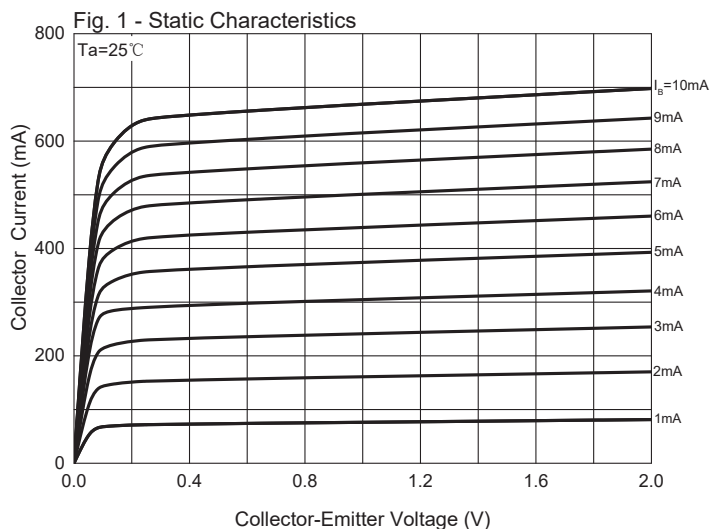
## Suggested Solder Pad Layout



## Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			100	nA	$V_{CB}=50V, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			100	nA	$V_{EB}=5V, I_C=0$
Collector-Emitter Cutoff Current	$I_{CES}$			100	nA	$V_{CE}=50V, V_{BE}=0$
DC Current Gain	$h_{FE(1)}$	300				$V_{CE}=2V, I_C=100mA$
	$h_{FE(2)}$	300				$V_{CE}=2V, I_C=500mA$
	$h_{FE(3)}$	300		700		$V_{CE}=2V, I_C=1A$
	$h_{FE(4)}$	200				$V_{CE}=2V, I_C=2A$
	$h_{FE(5)}$	100				$V_{CE}=2V, I_C=3A$
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$			80	mV	$I_C=500mA, I_B=50mA$
	$V_{CE(sat)2}$			160	mV	$I_C=1A, I_B=50mA$
	$V_{CE(sat)3}$			280	mV	$I_C=2A, I_B=100mA$
	$V_{CE(sat)4}$			260	mV	$I_C=2A, I_B=200mA$
	$V_{CE(sat)5}$			370	mV	$I_C=3A, I_B=300mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$			1.1	V	$I_C=2A, I_B=100mA$
	$V_{BE(sat)2}$			1.2	V	$I_C=3A, I_B=300mA$
Base-Emitter Turn-on Voltage	$V_{BE(on)}$			1.1	V	$V_{CE}=2V, I_C=1A$
Transition Frequency	$f_T$	100			MHz	$V_{CE}=5V, I_C=100mA, f=100MHz$
Collector Capacitance	$C_{ob}$			25	pF	$V_{CB}=10V, I_E=0, f=1MHz$

## Curve Characteristics



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 1Kpcs/Reel

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